Nicholas Freeman Mehrle

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Education

Massachusetts Institute of Technology — **Cambridge, MA**
Ph.D. Candidate - Physics (Astrophysics) — 9/2017 - Present
- **Advisor:** Professor Ian Crossfield
- **GPA:** 5.0/5.0

Johns Hopkins University — **Baltimore, MD**
M.A. Physics and Astronomy — 5/2016
- **Advisor:** Professor Tobias Marriage
- **Thesis:** Design of the Cosmology Large Angular Scale Surveyor (CLASS) Polarization Modulators

Johns Hopkins University — **Baltimore, MD**
B.S. Physics with honors — 5/2016
- **Additional Majors:** Mathematics, Applied Mathematics & Statistics
- **GPA:** 3.91/4.0

Experience

Massachusetts Institute of Technology — **Cambridge, MA**
Graduate Student — 9/2017 - Present
- Characterizing atmospheres of extra-solar planets via high resolution ground based spectroscopy

University of Maryland — **College Park, MD**
Web Developer - Department of Astronomy — 12/2016 - 9/2017
- Designed and built online educational tools to illustrate astronomy concepts

Optiver US LLC — **Chicago, Il**
Derivatives Trader - Agricultures Team — 7/2016 - 10/2016
- High frequency commodities options market maker
- Priced options using time-series analysis and machine learning techniques

Johns Hopkins University — **Batimore, MD**
Research Assistant - Department of Physics and Astronomy — 5/2013 - 5/2016
- Constructed variable delay polarization modulator for microwave band telescope
- Master's thesis on telescope design and physics of Cosmic Microwave Background

CERN — **Geneva, CH**
Research Assistant - Compact Muon Solenoid — 1/2015 - 5/2015
- University of Michigan Semester at CERN program scholar
- Performed statistical analysis to discriminate production methods of Higgs boson

Johns Hopkins University Applied Physics Lab — **Laurel, MD**
Technical Intern - Applied Concepts and Technology Group — 5/2014 - 8/2014
- Developed and tested feature estimation algorithms
- Integrated radar model into simulation environment

Papers

- Thomas Essinger-Hileman, et al. "CLASS: the Cosmology Large Angular Scale Surveyor ", *Proc. SPIE* 9153, Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy VII, 91531I (July 23, 2014); doi:10.1117/12.2056701
- John W. Appel, et al. "The Cosmology Large Angular Scale Surveyor (CLASS): 38-GHz Detector Array of Bolometric Polarimeters ", *Proc. SPIE* 9153, Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy VII, 91531J (July 23, 2014); doi:10.1117/12.2056530

Teaching/Mentoring

- Grader, 8.21 Physics of Energy, MIT 1/2018 - 5/2018
- Creator/Instructor, "Rebuild", MIT IAP non-credit class 1/2018
- Creator/Instructor, "The Flat Earth and Debunking Conspiracy Theories" MIT SPLASH 11/2017
- Volunteer, "Adopt-a-Physicist" program, American Institute of Physics 10/2017
- TA, Differential Equations, Johns Hopkins University 9/2015 - 12/2015
- Tutor, Introductory Physics, Johns Hopkins University 9/2013 - 9/2014

Miscellaneous

Computer Skills: Python, Java, JavaScript, C, C++, Matlab, Mathematica, R, HTML, CSS, LaTeX, SolidWorks, VBA

Certifications: Technician Class Ham Radio Operator
Student Pilot

Activities: MIT Students for the Exploration and Development of Space - Cofounder
MIT Sidewalk Astronomy

Honors: Phi Beta Kappa
Sigma Pi Sigma
Johns Hopkins Univ. Dean's List all semesters

Testing: Physics GRE - 960/990 (92nd percentile)
General GRE - V: 165/170 (95th), Q: 169/170 (97th), W: 5.5/6 (98th)